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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/712,840	11/12/2003	Thomas R. Ohnstein	H0005156 (1016.1140101)	9496
128	7590	06/28/2005	EXAMINER	
HONEYWELL INTERNATIONAL INC. 101 COLUMBIA ROAD P O BOX 2245 MORRISTOWN, NJ 07962-2245			ROJAS, BERNARD	
			ART UNIT	PAPER NUMBER
			2832	

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/712,840

Applicant(s)

OHNSTEIN ET AL.

Examiner

Bernard Rojas

Art Unit

2832

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 15-17, 19-21 and 25-28 is/are rejected.
- 7) ☒ Claim(s) 13, 14, 18 and 22-24 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 10, 15, 26 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Anderson et al. [US 6,138,604].

Claim 1, Anderson discloses an actuator device [Figure 7] comprising: a spine member [102] having a length; a first plate and a second plate [130, 134 and 132, 136], the first plate fixed to the spine member at a first location along the length of the spine member and the second plate fixed to the spine member at a second location along the length of the spine member, wherein the second location is spaced from the first location; a first actuator [122] positioned between the first plate and the second plate for selectively creating a push and/or pull force between the first plate and the second plate to change the orientation of the first plate relative to the second plate [Figure 7].

Claim 2, Anderson discloses the actuator device of claim 1 further comprising a second actuator [124] positioned between the first plate and the second plate for selectively creating a push and/or pull force between the first plate and the second plate to change the orientation of the first plate relative to the second plate.

Claim 3, Anderson discloses the actuator device of claim 2 wherein the first actuator is positioned in a first region between the first plate and the second plate, and

the second actuator is positioned in a second region between the first plate and the second plate, wherein the first region is separate from the second region [Figure 7].

Claim 4, Anderson discloses the actuator device of claim 3 wherein the spine member passed between the first region and the second region [Figure 7].

Claim 10, Anderson discloses the actuator device of claim 1 wherein the spine member bends when the orientation of the first plate is changed relative to the second plate [Figure 7].

Claim 15, Anderson discloses a flexible member [Figure 7] comprising: a spine member having a length [102]; two or more plates attached at spaced locations along the length of the spine member [130,134 and 132, 136], selected plates forming a plate pair; and one or more actuators positioned between and fixed to at least selected plate pairs for creating a push and/or pull force between the corresponding plate pair and to change the relative orientation of the plate pair.

Claim 26, Anderson discloses the flexible member according to claim 15 wherein each of the two or more plates define a major surface, wherein the spine member intersects and is attached to the two or more plates at a location that is offset from the center of the major surface [Figure 7].

Claim 27, Anderson discloses the flexible member according to claim 15 wherein each of the two or more plates define a major surface, wherein the spine member intersects and is attached to the two or more plates at or near an edge of the major surface [Figure 7].

Claims 1-10, 15-17, 19-21 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Moya et al. [US 5,142,932].

Claim 1, Moya discloses an actuator device [Figure 3] comprising: a spine member [20] having a length; a first plate and a second plate [14,16], the first plate fixed to the spine member at a first location along the length of the spine member and the second plate fixed to the spine member at a second location along the length of the spine member, wherein the second location is spaced from the first location; a first actuator [40] positioned between the first plate and the second plate for selectively creating a push and/or pull force between the first plate and the second plate to change the orientation of the first plate relative to the second plate.

Claim 2, Moya discloses the actuator device of claim 1 further comprising a second actuator [40] positioned between the first plate and the second plate for selectively creating a push and/or pull force between the first plate and the second plate to change the orientation of the first plate relative to the second plate [Figure 2].

Claim 3, Moya discloses the actuator device of claim 2 wherein the first actuator is positioned in a first region between the first plate and the second plate, and the second actuator is positioned in a second region between the first plate and the second plate, wherein the first region is separate from the second region [Figure 3].

Claim 4, Moya discloses the actuator device of claim 3 wherein the spine member passed between the first region and the second region [Figure 3].

Claim 5, Moya discloses the actuator device of claim 2 further comprising: a third actuator [40] positioned between the first plate and the second plate for selectively

creating a push and/or pull force between the first plate and the second plate to change the orientation of the first plate relative to the second plate; a fourth actuator [40] positioned between the first plate and the second plate for selectively creating a push and/or pull force between the first plate and the second plate to change the orientation of the first plate relative to the second plate [Figure 2].

Claim 6, Moya discloses the actuator device of claim 5 wherein the first actuator, the second actuator, the third actuator and the fourth actuator are positioned in separate regions between the first plate and the second plate [Figure 2].

Claim 7, Moya discloses the actuator device of claim 6 wherein the separate regions are selectively spaced around the spine member [Figure 2].

Claim 8, Moya discloses the actuator device of claim 7 wherein the separate regions are disposed symmetrically about the spine member [Figure 2].

Claim 9, Moya discloses the actuator device of claim 8 wherein each of the separate regions corresponds to one of four quadrants about the spine member [Figure 2].

Claim 10, Moya discloses the actuator device of claim 1 wherein the spine member bends when the orientation of the first plate is changed relative to the second plate [Abs].

Claim 15, Moya discloses a flexible member [Figure 3] comprising: a spine member [20] having a length; two or more plates [14, 16] attached at spaced locations along the length of the spine member, selected plates forming a plate pair; and one or more actuators [40] positioned between and fixed to at least selected plate pairs for

creating a push and/or pull force between the corresponding plate pair and to change the relative orientation of the plate pair.

Claim 16, Moya discloses the flexible arm of claim 15 wherein each of the one or more actuators [40] includes an array of flexible unit cells capable of actuating from an expanded state to a closed state in response to an applied electric potential [Figure 2].

Claim 17, Moya discloses the flexible arm of claim 16 further comprising a controller [41] for selectively controlling the actuation of the one or more actuators [40] to create a desired motion of the flexible arm [Figure 2].

Claim 19, Moya discloses the flexible member of claim 15 further comprising one or more sensors [42, 66 and 44, 64] for sensing one or more environmental conditions in the vicinity of the flexible member [Figure 3].

Claim 20, Moya discloses the flexible member of claim 19 further comprising a transmitter [47] adapted to transmit signals related to data captured by the one or more sensors.

Claim 21, Moya discloses the flexible member of claim 17 further comprising a receiver [43] for receiving commands and for providing the commands to the controller.

Claim 25, Moya discloses the flexible member according to claim 15 wherein each of the two or more plates define a major surface, wherein the spine member intersects and is attached to the two or more plates near the center of the major surface [Figure 2].

Claim Rejections - 35 USC § 103

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11, 12 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moya et al. [US 5,142,932] in view of Horning et al. [US 6,646,364].

Claim 11, Moya et al. discloses the claimed actuator device with the exception of using an electrostatic actuation means.

Horning et al. discloses actuating a device using an array of electrostatically actuated unit cells [abs].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to electrostatic unit cell arrays of Horning et al. to actuate the

device of Moya et al. since the electrostatic consumes less power and creates less heat.

Claim 12, Horning et al. teaches that at least some of the electrostatically actuated unit cells are actuated from an expanded state to a closed state in response to an applied electric potential [col. 4 lines 18-31].

Claim 28, A flexible member [Figure 3], comprising: an elongated body [20] with one or more actuators [40] positioned at selected locations along the length of the elongated body, the one or more actuators, when activated, change the shape of the flexible member [Figure 1]; and a controller [41] for controlling the one or more actuators.

Moya et al. fails to teach using an electrostatic actuation means.

Horning et al. discloses actuating a device using an array of electrostatically actuated unit cells [abs].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to electrostatic unit cell arrays of Horning et al. to actuate the device of Moya et al. since the electrostatic consumes less power and creates less heat.

Allowable Subject Matter

Claims 13, 14, 18, 22, 23, and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bernard Rojas whose telephone number is (571) 272-1998. The examiner can normally be reached on M-F 8-4:00), every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin G. Enad can be reached on (571) 272-1990. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306..

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Bernard Rojas
Br

[Signature]
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